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PROFETAS report

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1. Introduction

Sustainable development requires a long-term vision on the possibilities to reconcile economic, environmental and social needs. In this respect, world food production and consumption offer an enormous challenge. Presently sufficient food is produced on a global scale, but large differences exist in per capita consumption. One the one hand, poverty prevents many people in poor countries from attaining a sufficient diet, but on the other hand overweight and obesity belong to today's most pervasive public health problems in rich countries. To meet the increasing global demand for food, two alternative routes can be taken: to expand and intensify agriculture, which already appropriates significant amounts of nature's resources or to change from resource-intensive meat consumption to more vegetarian diets. The latter option is studied by the PROFETAS project, which focuses on the environmental sustainability, the technological feasibility and the social desirability to partially replace meat proteins with plant protein products, or so-called *novel protein foods*. The Western consumption pattern is a suitable candidate for such a transition, which would benefit the environment as well as human health (Helms, 2004).

How can such a transition succeed? First of all, a novel protein food has to find its place on the market just like any other new product. The market is the place where sellers of a product meet potential buyers and where exchange between them can take place. Every market is subject to certain rules. Among other things, these rules aim to establish fair competition among sellers and to protect consumers against deceit, malpractice and risks to health and safety. The rules are set and enforced by the national government, but they are increasingly based upon international agreement in what we will call 'the international regulatory framework'. This international regulatory framework is quite complex, not in the least for (novel) food products.

This report examines international rules and regulations affecting the marketing and support of novel protein foods, that may either provide opportunities or challenges to the transition towards a more vegetarian diet. In particular, it examines the rules for market entry, promotion and support. The most important rule-setting international institutions in this respect are the European Union (EU), the Food and Agriculture Organization (FAO), the World Health Organization (WHO), and the World Trade Organization (WTO).

This report sketches the structure of this international regulatory framework and examines how the rules of international institutions may affect the marketing of novel protein foods. The structure of the report is as follows. Section 2 introduces the main international actors within the international regulatory framework for novel protein foods – the EU, the WTO and the FAO/WHO Codex Alimentarius. Section 3 examines the internationally agreed rules under which a novel food product may enter the EU market. Section 4 examines the international rules that govern official support of a novel food product, with an emphasis on rules and regulations of the EU and the WTO. Section 5 examines the international regulatory framework for taxation of meat products as a way to indirectly stimulate the production and consumption of proteins of vegetable origin. Section 6, finally, concludes and makes some policy recommendations.

2. The international regulatory framework

The international regulatory framework affecting the marketing of novel protein foods is quite complex. This chapter briefly introduces the main actors in the regulatory framework. Section 2.1 deals with the European Union (EU). Section 2.2 briefly introduces the World Trade Organization (WTO), and Section 2.3 briefly describes relevant aspects of the *Codex Alimentarius* of the United Nations' Food and Agriculture Organization (FAO) and World Health Organization (WHO).

2.1 The European Union

Since May 1, 2004, the European Union (EU) comprises 25 European countries and has about 454 million inhabitants. It is governed through a complex structure made-up of five main institutions (European Parliament, Council, Commission, Court of Justice and Court of Auditors) and several supporting institutions (including, for example, the European Bank). Its legal basis is a series of Treaties, starting from the Treaties of Paris (1952) and Rome (1957), amended by the Single European Act (1986), the Treaties of Maastricht (1992), Amsterdam (1997) and Nice (2001), which have been merged into one consolidated version called the Treaty of European Union.[1]

The EU and its institutions have an important role in various aspects of the marketing of (novel) foods. Basic responsibilities of the EU in this area concern the free movement of goods across national borders of the internal market and the issue of food safety and consumer protection. Based on certain provisions of the treaty establishing the European Community, the EU produced a series of directives and regulations concerning food safety and consumer protection. These directives and regulations entail rules on how and when novel foods should be approved (or not approved) to be marketed in Europe ('authorisation'), what kind of information should accompany these foods and in what form it should be presented to the consumer ('labelling'), and how the novel foods should be tested for undesirable ingredients or substances ('traceability'). EU internal market and competition policies determine, *inter alia*, the way that national governments can support domestic industries and firms with a view of fair competition For example, the rules prohibits any business agreements "which have as their object or effect the prevention, restriction or distortion of competition within the common market" (Article 81, EC Treaty). They also prohibit "any abuse by one or more undertakings of a dominant position within the common market" (Article 82, EC Treaty). The European Commission plays an important role in monitoring aid given to companies by EU governments ('State aid') and can act if it doubts the compatibility of the aid with the EC Treaty.

2.2 The World Trade Organization

The WTO is an international organization that sets and administers rules for the trade of goods and services between nations. In its own words, its main goal is to ensure that this

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[1] The Treaty of European Union and the Treaty establishing the European Community as in force from 1 February 2003 (Nice consolidated version).

trade is "as smooth, predictable and free as possible".[2] The WTO was established in 1995 as the successor of the General Agreement on Tariffs and Trade (GATT) that was established shortly after World War II. At present, the WTO has nearly 150 country members, while about 30 other countries are negotiating membership. The rules of the WTO are laid down in about 60 different agreements and separate commitments ('schedules') made by individual members in specific areas such as customs duty rights and market openings in services.[3] Despite this sizeable body of rules and specific commitments, the basic principles of the WTO are fairly simple. Regarding the international trade of goods, the basic principles are:

1. The Most-Favoured Nation (MFN) principle (Art. I, GATT). This principle states that each trading partner gets immediately and unconditionally the best treatment given to any other trading partner. Hence, there shall be no discrimination between like
   products or services originating in or destined for different countries;
2. National Treatment (Art. III, GATT). Imported products shall be treated no less favourable than products of national origin in every respect. Hence, there shall be no discrimination between an imported product and a product of national origin, once that product has passed customs;
3. Binding commitments (Art. II, GATT). A WTO member commits itself to ensure an agreed level of access to its market, on an MFN basis [that is, for all other WTO members], for supplying countries;
4. Prohibition of Quantitative Restrictions/Quota (Art. XI, GATT). In principle, WTO prohibits quantitative restriction on imports and exports and only allows duties, taxes or other charges.

These basic principles apply to all goods trade, unless the trade falls within an explicit and well-defined exception. And of course, as one trade analyst once remarked: it is these exceptions, rather than the rules, that make the body of WTO legal texts so voluminous. One specific feature of WTO decision-making in WTO's governing body (the Council) is that decisions are taken by consent. History has shown that this makes it very difficult for the WTO to change or adapt its rules in view of new developments. On occasion, separate codes are adopted that give an authoritative interpretation to WTO's basic rules in specific situations. Some of these specific Codes are of relevance to the international trade in novel foods. However, in most cases it is up to WTO's Dispute Settlement Mechanism (WTO's own judiciary) to interpret the rules in the light of new de-

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2 WTO website at http://www.wto.org/english/thewto_e/whatis_e/inbrief_e/inbr00_e.htm

3 Together these agreements and commitments cover about 30.000 pages of text.

velopments in specific cases.[4] Hence, case law is extremely important in the interpretation of WTO's rules.[5]

2.3 Codex Alimentarius

FAO and WHO are specialised agencies of the United Nations. FAO was established in 1945 with a mandate to raise levels of nutrition in the world, increase agricultural productivity and better the lives of rural population. WHO was established in 1948 as a specialised UN agency with a mission to raise levels of human health. FAO and WHO jointly formed the *Codex Alimentarius* Commission in 1962 to set international standards for food quality and safety. Membership to the Commission that is responsible for the Codex is open to all members and associate members of the FAO and WHO and comprised of 163 countries in 1998.[6]

This code is widely recognised and is considered "the single most important international reference point for developments associated with food standards".[7] Chapter 7 of the Codex contains, *inter alia*, standards related to vegetable proteins.

The standards of the Codex are not directly binding for members, but, as indicated above, they are an important reference point and they are often referred to by international agreements that do have a legally binding nature, such as the WTO. Section 3.3 below will briefly discuss these standards.

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4 One such 'new development' that causes problems for the interpretation of WTO's rules is the emergence of international environmental agreements that may consciously or unconsciously affect trading opportunities of WTO members that may at the same time be members of the international environmental agreement. The international community still has not found a satisfactory answer to the question of how to solve potential conflicts between WTO law and international environmental law.

5 WTO's critics often criticise the lack of transparency and democratic content of WTO's decision making as this, to a large degree, evolves through case law.

6 Website http://www.codexalimentarius.net/web/index_en.jsp

7 Idem.

3. Regulation of market entry

3.1 EU authorisation of novel foods

Before a novel food can be placed on the EU market, it has to receive authorisation by the government. Since 1997, the procedure to get authorisation is specified in the Novel Food Regulation of the EU (Regulation (EC), No. 258/97). Novel foods and food ingredients that were already on the EU market before 1997 (such as pea protein) are not affected by this regulation, but new products must undergo a potentially lengthy and expensive authorisation procedure.

The Novel Food Regulation defines a novel food or a novel food ingredient. These are foods or ingredients:

- Which are produced from genetically modified organisms or which contain such organisms;
- Which present a primary molecular structure;
- Which consist of micro-organisms, fungi or algae;
- Consist of or are isolated from plants or isolated from animals;
- Whose nutritional value, metabolism or level of undesirable substances has been significantly changed by the production process.

In the authorisation procedure it is examined whether the novel food product presents a danger to the consumer, mislead him or her, or whether it is nutritionally disadvantageous to him or her compared with the product it replaces. The EU has issued guidelines for the scientific aspects of this examination (97/618/EC). The examination is initially carried out by a national competent body, but the European Commission (assisted by its Standing Committee on Foodstuffs) may overrule the national authorisation. The final authorisation decision specifies the scope of the authorisation and specifies the conditions of use, the designation of the food or food ingredient, its specification and the specific labelling requirements. Figure 3.1 presents a graphic overview of the most important steps and decisions in the authorisation procedure.

If the novel food is produced from or contains genetically modified organisms (GMO), it is subject to a special, additional procedure that emphasises the assessment of *environmental* risk. Public concern in Europe over GMOs and GMO food led to a *de facto* moratorium on new applications since 1998. The EU has recently tried to end this moratorium by approving new and strict legislation concerning the traceability and labelling of GMO food and feed, but this legislation has not yet been implemented.[8]

An important concept in the approval of novel foods is the concept of 'substantial equivalence'. This concept was introduced by OECD (1993) as "the most practical approach to the determination of [food] safety." The substantial equivalence test assesses whether a novel food is equivalent in all its substantive aspects to a conventional food

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[8] Regulation (EC) No. /2003 Concerning the traceability and labelling of genetically modified organisms and the traceability of food and feed products produced from genetically modified organisms and amending Directive 2001/18/EC.

product, if such exist. To establish substantial equivalence account should be taken of the processing that the food may undergo, as well as the intended use and the exposure, based the on the pattern of dietary consumption and the characteristics of the consuming population (OECD, 1993). The idea is that if a novel food is found to be 'substantially equivalent' to a well-known conventional food, it can be assumed to pose no new health risks and is hence acceptable for commercial use.

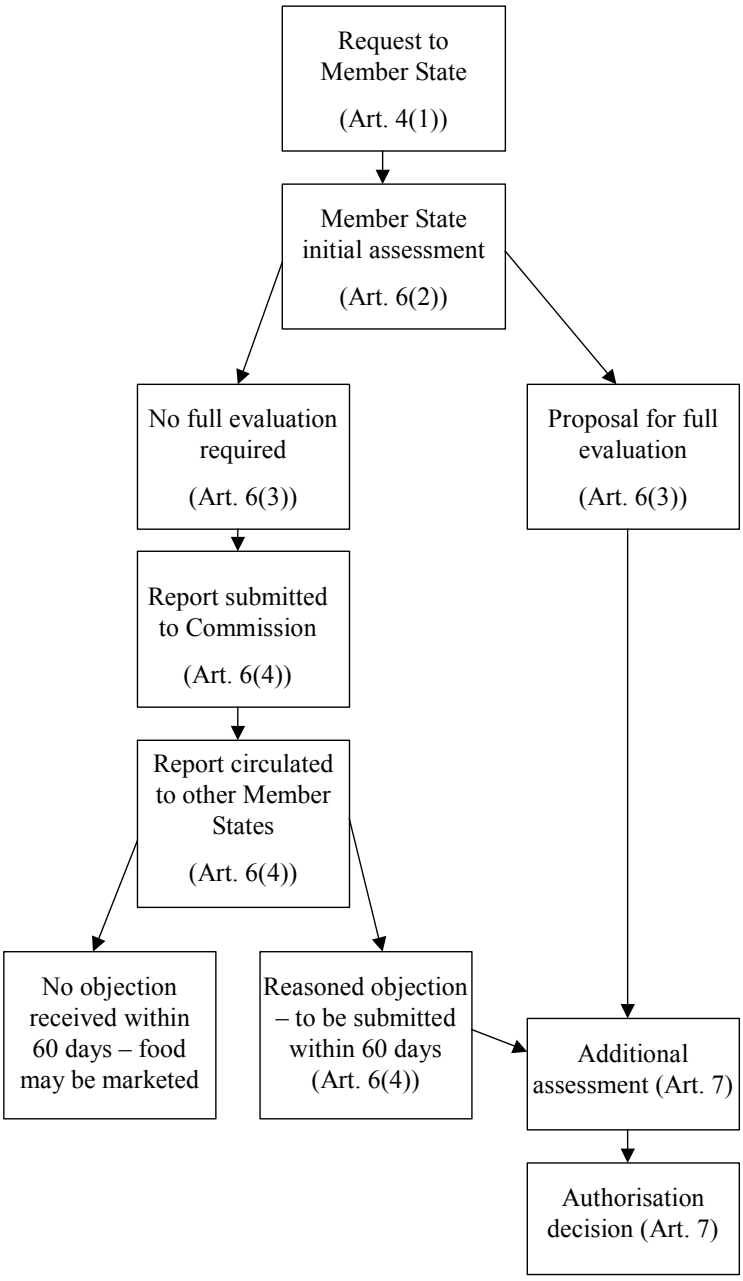

Figure 3.1 Authorisation procedure for novel foods (from Jukes(2004))

The concept of substantial equivalence has been sharply criticised, both for its definitional vagueness and scientific validity (Millstone & Brunner, 1999), and for ethical reasons (Pouteau, 2002). The ethical objections focus on the argument that a food product cannot be isolated from the socio-cultural and natural environment in which it is pro-

duced and consumed. The notion of substantial equivalence would therefore unjustifiably 'reduce' a food product to its material or substantial characteristics.

For a novel protein food, however, it would be very positive as it was found to be substantially equivalent to a conventional food. In that case, its authorisation procedure would be relatively easy. In the contrasting case, when the novel food was not considered to be substantially equivalent to a conventional food, or when such a food simply did not exist before, the formal authorisation procedure would be much more demanding (both in time and resources).

3.2 WTO and market entry

The conditions of market entry are also of prime concern to the WTO and its members. WTO agreements of relevance to novel protein foods include: the General Agreement on Tariffs and Trade (GATT) (establishing the basic principles of free trade), The Agreements on Technical Barriers to Trade (TBT) and Sanitary and Phytosanitary Measures (SPS), the Agreement on Subsidies and Countervailing Measures, the Agreement on Trade-Related Intellectual Property Rights (TRIPS), and the Agreement on Agriculture.

The WTO agreements specify the conditions of international market access. These conditions relate to import tariffs and quota, but also to other rules and regulations that may unjustifiable discriminate between domestic and foreign suppliers, the so-called non-tariff barriers.

The members of the WTO are divided over EU policies on GMOs. The United States (US) have, together with Canada and Argentina, officially challenged EUs policies before the WTO.[9] The US claim that EU's stance with respect to GMOs is an unjustified technical (non-tariff) barrier to the access of US products on the EU market. The issue of GMOs looms large in the present so-called 'Doha Development Round' of trade negotiations within the WTO.

The roots of the dispute between the EU and other WTO members (especially the US) are commonly ascribed to a different approach to the assessment of risk for human health and the environment. While the US would have a tendency to put the burden of proof on the prosecutor (i.e., the product is allowed except in the case of scientific proof of risk), the EU would have the tendency to put the burden of proof on the defendant (i.e., the product is forbidden except if it can be proved that there is no risk). Examples of this approach to risk assessment of the EU are the GMO and the hormones-in-beef import prohibitions. It has also been argued, however, that the main difference between the EU and the US in this respect is not so much a question of principle, but basically derives from differing social-cultural tolerances for certain risks. While the EU would be less tolerant to risks related to GMOs and hormones, the US would be more sensitive to risks related to, for example, new drugs, blood donations, and mad cow disease. (Daemen, 2003). The WTO rules favour the approach to risk assessment of putting the burden of proof on the prosecutor ('allow except'). The alternative EU approach to risk assessment ('forbid except') might be a barrier to the introduction of novel protein foods.

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[9] Press release of the Office of the United States Trade Representative (August 7, 2003). "United States requests dispute panel in WTO challenge to EU biotech moratorium".

3.3 International standards for novel foods: the codex alimentarius

The *Codex Alimentarius* contains international standards for vegetable protein products (VPP).[10] The Codex defines vegetable protein products as "food products produced by the reduction or removal from vegetable materials of certain of the major non-protein constituents (water, oil, starch, other carbohydrates) in a manner to achieve a protein (N x 6.25) content of 40% or more. The protein content is calculated on a dry weight basis excluding added vitamins, minerals." [11] The standards contain prescriptions for allowed food additives, contaminants, hygiene, packaging and labelling. The guidelines for the utilization of vegetable protein products in foods, contains specific reference to the use of vegetable protein products in partial or complete substitution of animal protein in foods. The guidelines stipulate that this substitution should be permitted on the conditions that 1) the presence of the vegetable protein product is clearly indicated on the label of the food product, and 2) sufficient consideration is given to the *nutritional adequacy* of the partially or completely substituted food, defined in terms of protein quality and quantity and content of minerals and vitamins.[12] The guidelines also contain specific guidelines for *testing* safety and nutritional quality of vegetable protein products.

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[10] Codex standard for wheat protein products including wheat gluten, Codex Stan 163-1987, Rev. 1-2001; Codex general standard for vegetable protein products (VPP), Codex Stan 174-1989; Codex general guidelines for the utilization of vegetable protein products (VPP) in foods, CAC/GL 4-1989; Guidelines for the use of non-meat protein products in processed meat and poultry products, CAC/GL 15-1991.

[11] Codex general standard for vegetable protein products (VPP), Codex Stan 174-1989.

[12] Codex general guidelines for the utilization of vegetable protein products (VPP) in foods, CAC/GL 4-1989. The guidelines elaborate on methods to safeguard nutritional adequacy.

4. Regulation of promotion and support

If a novel protein food is granted access to the (EU) market, the firm that has developed the food may wish to establish exclusive rights over the sales of the products, and the national or EU government may wish to stimulate the sales of the product, for example because of its environmental superiority over the food it competes with. This chapter briefly examines the international regulatory framework that deals with property rights and government support. Section 4.1 briefly examines the international regime on 'intellectual property rights'. Section 4.2 examines international rules on government support, both by the European Union (4.2.1) and the WTO (4.2.2). Section 4.3 pays attention to eco-labelling of novel protein products.

4.1 Intellectual property rights

Inventors of novel protein foods might want to establish exclusive rights over their product in order to restrict competition and to earn 'monopoly' rents over the sales of the product, at least for some time. While governments do usually not favour restriction of competition, an exception for innovators may be made on the grounds that innovation provides external benefits to society that cannot be appropriated by innovators in a fully competitive market. Hence, the exclusive rights over the sale of the product help to 'internalise' the external benefits of innovation and thereby give an incentive to innovation. Without such an incentive, there would be 'too little' innovation from a social point of view.

The exclusive rights over the sale of the product may be established by 'intellectual property rights',[13] if certain conditions are met. For example, for a patent to be granted the product or process should be "new, involve and inventive step and [be] capable of industrial application." [14] The exclusive rights offer the developer of the new product monopoly rents for a specific length of time (often about twenty years). The size (and even the existence) of the monopoly rents will, of course, depend on the success of the product in the market.

The World International Property Organization (WIPO) administers most multilateral treaties on Intellectual Property Rights.[15] The TRIPS Agreement of the WTO contains rules for intellectual property rights' regimes to which WTO members have committed themselves. Critics of this Agreement have argued that the TRIPS rules are overly restricting and too broad in scope, conflicting with more traditional rights of people and communities in developing countries, and giving governments too little scope to refuse patenting on the grounds of considerations of public interest. An example is the recent international controversy over cheap AIDS medicines for developing countries. It has

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13 'Intellectual Property Rights' include specific rights such as patents, copyright, trademarks, trade secrets, plant breeders' rights, etc. (Dutfield, 2000).

14 TRIPS Agreement, Art. 27 (Patentable Subject Matter).

15 Including the Patent Cooperation Treaty, the Paris Convention for the Protection of Industrial Property, and the Bern Convention for the Protection of Literary and Artistic Works (Dutfield, 2000).

also been argued that the length of period in which protection is granted by intellectual property rights is often too long.

If a novel protein food can be patented in one market (if it is sufficiently new, innovative and capable of industrial application), the TRIPS agreement offers its developers more certainty over the protection of their 'invention' in overseas markets. The TRIPS agreement could therefore stimulate the invention and development of novel protein foods by offering international protection of the intellectual property rights of its inventors.

4.2 Subsidies and other government support

Forms of government support include direct subsidies and fiscal measures, such as a reduction of value-added taxes or other taxes on the product. These forms of government support are subject to international rules, both at the level of the EU as at the level of the WTO.

4.2.1 EU rules on 'state aid'

The EU has developed rules with respect to government aid ('State aid') to firms and industries. We will briefly review these rules to examine whether and under what conditions government EU competition law would allow support for the promotion of novel protein foods.

In principle, EU law prohibits selective government support ('State aid') to firms and industries if this support could lead to a distortion of competition or if it might affect international trade between Member States (Art. 87(1) EC Treaty). Such aid is only allowed in a limited number of exceptions (Art. 87(3) EC Treaty). If one wants to examine the legitimacy of a subsidy for novel protein products, on should therefore examine if the subsidy would qualify as (prohibited) state aid and if so, whether it could be 'saved' by one of the exceptions to the prohibition of such aid. Recent jurisprudence of the European Court seems to suggest that a legal test for the determination of (prohibited) state aid consists of five elements, namely whether there is (Bacon, 2003):

1. An aid in the sense of a benefit or advantage;
2. Which is granted by the state or through state resources;
3. Which favours certain undertakings over others (the 'selectivity' principle);
4. Which distorts or threatens to distort competition; and
5. Which is capable of affecting trade between Member States.

A few elements of this five-prong test deserve further attention. First, aid can be in the form of a direct subsidy or a fiscal advantage, but the provision also covers more indirect forms of aid. Second, the aid must be selective in that it favours certain undertakings over others. In the case of aid for environmental purposes (or to promote sustainable development) it is hard to imagine a form of support that would not be selective. However, not all aid for environmental purposes is forbidden, see below). Third, the criteria of distortions and trade effects are in fact quite weak: no actual distortions of competition or trade effects have to be shown: it is enough that the aid is 'threatens' to distort or is 'capable' of trade effects. The burden of proof seems to be on the other side: the advocate of state aid must present proof that the aid does not 'threaten' competition or is not 'capable' of causing trade effects. Any effective aid for environmental purposes or for sus-

tainable development will almost necessarily have this distortion effect: it usually wants to put cleaner of more sustainable firms in a better (or less worse) competitive position relative to their dirtier or less sustainable competitors. State aid to promote novel protein food will almost inevitably favour some firms (the novel protein food producers) over others (e.g., the meat producers) and improve the competitive position of novel protein food producers (and hence 'distort' competition in the language of EU competition law).

While state aid to novel protein food producers would thus almost certainly classify as state aid in the meaning of Art. 87(1), it remains to be seen whether this type of state aid can be 'saved' by the exceptions to its general prohibition. The exceptions are listed in Art. 87(2) and (3) of the EC Treaty and are further elaborated in separate guidelines. The exceptions in Art 87(2) are limited to aid with a social character and with little or no effect on competition. Exceptions in Art 87(3) have a more general character; they refer to aid to promote the economic development of certain underprivileged areas, aid to remedy 'serious disturbances', to facilitate the development of certain economic activities, to promote culture and heritage conservation, and other categories of aid as may be specified by a decision of the Council. Perhaps the most relevant exception ground for state aid to novel protein foods is the exception 3b where it is stated that aid "to promote the execution of an important project of common European interest…"*may be* considered to be compatible with the common market.[16] Environmental protection is considered to be one important project of common European interest. This exception can therefore provide a legal basis for state aid for environmental protection. As of 1974, the European Commissions has drafted a series of guidelines to specify the conditions under which state aid might be provided for environmental protection. The current guidelines are from the year 2001 (EC, 2001).

In the guidelines on state aid for environmental protection, the Commission makes it clear that state aid for environmental protection should be the exception rather than the rule. Its guiding principle in financing environmental protection measures is the polluter pays principle. Hence, the costs of measures to deal with pollution should be borne by the polluter who causes the pollution (EC, 2001: para 6). In principle, therefore, "aid is not justified in the case of investments designed merely to bring companies into line with new or existing Community technical standards". (EC, 2001: para 20). The polluter pays principle seeks to 'internalise' environmental costs into the costs of production. This ensures that polluting inputs will be relatively more expensive than clean inputs, and also that 'dirty' products will be relatively more expensive than 'clean' products. Hence, profit maximising firms and utility maximising consumers can make their own choices with respect to inputs, production methods and consumer products, respectively, on the basis of 'true' prices, i.e. prices that take account of environmental costs. Any state subsidy for environmental protection would 'distort' prices, in the sense that subsidised environmental costs would not show up in the market price of the final product. Hence, state aid would 'distort' the price signal to consumers who would therefore lack the incentive to buy a 'cleaner' consumption bundle.

In the case of novel protein food, the polluter pays principle requires that all environmental costs of food production and consumption would be borne by the polluter and

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[16] Emphasis added.

that prices of food products would reflect these environmental costs. If production and consumption of novel protein foods would generate less environmental costs than the production and consumption of conventional meat products, then there would be a relative cost advantage to novel protein foods. According the polluter pays principle it is not necessary – and even economically damaging – to support novel protein food beyond the level of support that is granted through the internalisation of environmental costs.

The guidelines, however, make some exceptions for small and medium sized enterprises (SMEs) who may be eligible for temporary aid to adapt to new standards (EC, 2001: para 18a) and also allow to some extent state aid as an incentive for firms to improve on standards (EC, 2001: para 18b). Whether and under what circumstances and conditions state aid for novel protein food would be allowed is difficult to predict with certainty. However, it is clear that in EU law, state aid is not the preferred instrument to promote the market penetration of novel protein food. Even if it would be allowed in certain circumstances it would certainly be subject to severe restrictions and strict conditions.

4.2.2 WTO rules on subsidies

Subsidies to firms may distort international trade by giving the subsidised firm a cost advantage over its foreign competitors. As such, this could amount to a different treatment of imported products in comparison to products of national origin, contradictory to the principle of National Treatment (see Section 2.2). Therefore, WTO prohibits subsidies that are either *designed* to discriminate between domestic and foreign producers (prohibited subsidies), or *can be shown to have an adverse effect* on a foreign country's commercial interests (actionable subsidies). Basic provisions on subsidies are laid down in Art. XVI, GATT. These basic provisions are elaborated in WTO's Agreement on Subsidies. With respect to environmental subsidies, there are thee main differences in comparison to EU's rules on state aid:

1. Unlike the EU (and the OECD), the WTO does not recognise the polluter pays principle as a leading principle for environmental policy. In fact, the WTO is not concerned with the quality or efficiency of its members' domestic policies. The WTO is only concerned about the effects of subsidies on international trade;
2. Unlike EU's rules on state aid that prohibit subsidies that *threaten* to distort competition or are *capable* of affecting trade, WTO can only prohibit subsidies if their adverse effects on competition and trade can *in fact* be demonstrated.[17];
3. While EU's rules on state aid only apply to EU's internal market, WTO rules on subsidies apply to nearly 150 WTO members.

A study on the international trade aspects of the introduction of novel protein foods that was carried out for the Profetas project showed that a Dutch consumer subsidy for novel

[17] Subsidies are objectionable if they cause injury to the domestic industry of another country, if they entail nullification or impairment of benefits accruing to another country under the GATT, or if they cause serious prejudice to the interest of another country (Howse & Trebilcock, 1996).

protein foods might *have the effect* of an export subsidy (Herok, 2003).[18] If this would be the case, foreign governments could file a complaint against such an 'actionable' subsidy with the WTO.

The government could stimulate the consumption of novel protein foods in a more indirect way, for example by sponsoring research or by advocating them in diet-related health promotion campaigns, and so on. A link could also be made to the World Health Organization's Global Strategy on Diet, Physical Activity and Health that, *inter alia*, warns against the dangers to health of the excessive consumption of fatty foods.[19]

4.3 Eco-labelling

Sellers of novel protein foods may also wish to signal to the consumer certain beneficial properties of these foods by means of (eco-) labelling schemes established by themselves or by independent third parties. Rules for such schemes are under discussion at the WTO, especially in the Committee of Trade and Environment (CTE) and the Technical Barriers to Trade (TBT) Committee. The discussion seems to focus predominantly on the trade aspects of voluntary eco-labelling schemes (including schemes implemented and administered by non-state actors) (see, for example, WTO, 2000). At the WTO level, the question is what role could/should the TBT committee play, in coordination with the CTE, to promote reducing barriers to trade through the application of the TBT. For instance, should it seek to determine which eco-labelling systems are accepted by the multilateral trading system? Should it define which eco-labelling requirements/criteria are considered to be consistent with the TBT agreement?

There is in general no problem if the eco-label refers to some property of the product itself, such as its plant-based origin. In fact, as was discussed above, the *Codex Alimentarius* international standards on novel foods demand such labelling information. More controversial are labelling schemes that relate to environmental and/or social conditions under which the product is produced (non-product related production and processing methods, or PPMs).

At present a wealth of voluntary eco-labelling schemes is operating in most Western markets. They are not (yet) challenged on the grounds that they violate WTO obligations. The Organisation for Economic Co-operation and Development (OECD) and the United Nations Conference on Trade and Development (UNCTAD) carried out extensive research programmes on the trade effects of eco-labelling and other environment-related technical barriers to trade, employing a case study methodology (OECD, 1997). Based on case study research, OECD (Vitalis, 2002) argues that many private eco-labelling schemes are trade distorting, discriminatory, and environmentally disappoint-

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[18] Herok (2003) suggests that a 20% consumer subsidy on novel protein foods in the Netherlands could have a modest effect on *domestic consumption* of these foods (+ 1.6 %), but could affect *foreign production* of novel protein foods dramatically (between – 20 % to – 50 % in EU countries, and – 9 % to – 18 % in the rest of the world: see Table 27). It should be noted, however, that these estimates are tentitative and should be confirmed by further research.

[19] Website http://www.who.int/dietphysicalactivity/en/.

ing. The paper argues for more public participation of private eco-labelling schemes to encourage transparency and non-discrimination.

Concluding then, the debate on eco-labelling within the WTO is in full swing, but has not yet resulted in firm decisions. We do not expect that the WTO will seriously challenge voluntary eco-labelling as such, but it might be that international standards will be developed for voluntary eco-labelling schemes to increase transparency and non-discrimination. Obviously, developers of eco-labelling schemes for novel protein foods should take account of the on-going debate in this area and, if possible, follow guidelines for transparency and non-discrimination that are already issued by international institutions such as the OECD.

5. Regulation of taxation

A number of Dutch organisations have recently proposed a consumer charge on meat and meat products, for various reasons. The reasons included: to generate revenues for the destruction of cattle due to the BSE crisis (Tweede Kamer, 2002), to generate revenues to stimulate animal welfare (Hees, Verschuur, & Wit, 2003), or to reduce the price gap between organic and conventional meat and meat products (Remmers, 2003). In practice, the consumer charge on meat and meat products could be implemented by an increase of the VAT rate from the present reduced rate on foodstuffs (6 %) to the general rate (19 %)), a specific consumer charge such as an excise tax, or a charge levied by the relevant commodity board.

A consumer charge on meat and meat products might also be considered as a way to stimulate the consumption of novel protein foods, either directly, by using the revenues of the charge to subsidise the production or consumption of novel protein foods, or indirectly, by its impact on the relative prices of meat and protein foods.

The Dutch Government is not in favour of a charge on meat and meat products. Its arguments against such a charge are partly practical, partly economic and partly related to the international legal framework (Tweede Kamer, 2003). With respect to the international legal framework, the following observations can be made:

- The EU rules on state aid do not allow to 'earmark' the revenues of a consumer charge for a specific purpose (e.g., the destruction of BSE cattle). Such a use of revenue would also be in conflict with the non-discrimination principle in international trade, because the supply of both domestic and foreign producers would be charged, but only domestic producers would benefit from the revenue of the charge[20];
- 'Meat' is not a well-specified product category. Meat comes in various forms and shapes and in various stages of processing into food products (such as pizzas). This poses problems for the VAT as well as for the excise tax alternative. Especially for the excise tax alternative, the assessment of the meat content of an imported product may cause serious difficulties and may lead to an uneven treatment of domestic and foreign suppliers. For the VAT alternative, the problem is that a product can only be in the 6% or the 19% tariff rate (there is no middle way). If processed food would be included in the scheme, the increase from 6% to 19% VAT would be applicable to all food products with meat in them, however small the fraction of meat.

It is important to note that international regulations do, in general, not prohibit taxes per se, but they do regulate the design of the tax. In general, the revenues of a consumer charge on meat and meat products should accrue to the general budget, and should not be used to finance certain measures in specific industries. In addition, the consumer charge should not discriminate between domestic and foreign suppliers.

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[20] The European Commission refused a French scheme where the revenues of a consumer charge on meat and meat products were used to finance the collection and destruction of carcasses and offal, on these grounds (Tweede Kamer, 2003).

An example may illustrate the kind of problems that arise because of the non-discrimination principle. Take the example that organic meat would be exempted from the consumer charge. The non-discrimination principle demands that organic meat from foreign suppliers should also be exempted from the charge. However, how can the national authority check whether all foreign meat that is supplied under the label 'organic' is really organic? Specific measures should be taken to be able to certify the authenticity of the 'organic' claim, and the non-discrimination principle would also require that the *process of certification* should be transparent and not be disproportionally difficult or expensive for foreign producers in comparison to their domestic competitors. All this could be difficult – and *is* often difficult – to implement in practice.[21]

[21] A practical solution could be to reserve the exception under the tariff to meat and meat products that are certified by some internationally recognised scheme such as IFOAM (International Federation of Organic Agriculture Movements). The question is whether this solution would hold against challenges before the WTO of importers of non-certified organic meat (or meat that has been certified by some competing organisation).

6. Conclusions and policy recommendations

International institutions provide incentives and barriers for the introduction, marketing and promotion of novel foods and food ingredients, but on balance the barriers seem to exceed the incentives.

Market introduction and market support of novel protein foods are subject to certain rules. These rules are increasingly set at international levels: both at the EU and at global level. Since 1997, the Novel Food Regulation of the EU sets the rules for the authorisation procedure. This procedure can be a barrier for the introduction of novel foods or food ingredients, especially if these foods or food ingredients are produced from GMOs. If the latter is the case, the procedure for authorisation is very strict.

Once the novel food is granted market access, it is important for commercial developers of novel protein foods to have the exclusive rights over the sale of these foods and to be protected against imitation by competitors. 'Intellectual property rights' regimes grant such rights and are increasingly based on multilateral cooperation and enforcement, through WIPO, the WTO and other organisations.

Promotion of novel protein goods by means of eco-labelling is controversial at the international level (WTO), if the eco-label criteria relate to the conditions under which the good is produced. Direct government support to the marketing of novel protein foods is also the subject of international, EU and WTO, law. It is not clear whether consumer subsidies for novel protein foods would be allowed under the state aid provisions of the EU. If the consumer subsidy would have *the effect* of an export subsidy and would impose damage on the foreign production of novel protein foods, such a subsidy could be challenged before the WTO. An indirect way to stimulate the production and consumption of novel *protein* foods could perhaps be a tax on meat and meat products. A consumption charge would not be prohibited by international law per se, but international laws would certainly have an impact on the design of the charge and the use of its revenue. Government agencies can, of course, encourage the consumption of novel protein foods by information campaigns and other non-discriminatory means.

The barriers erected by international institutions are mainly meant to protect the consumer and to resist protectionist' practices in international trade. These barriers cannot be circumvented, whatever the potential qualities of the new product. For a successful introduction and marketing of novel foods and ingredients, these barriers should be taken into account. Therefore, it is easier to start with foods and ingredients that are already authorised than to start with foods and ingredients that are still to be authorised, especially if they are derived of, or contain, GMOs. For the promotion of the novel foods and ingredients, not too much should be expected of traditional government instruments such as taxes and subsidies. Subsidies have already lost their appeal in most EU countries for purely domestic reasons, and additionally they are heavily restricted by EU regulations concerning state aid the single market. General government support by means of the sponsoring of research and by food education is not likely to be challenged before international institutions, however.

If novel foods and ingredients are to become a success, it should primarily be through private, commercial means and action. International institutions can protect and support commercial interests, for example, through the international protection of intellectual property rights.

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